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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/851,082 | 05/09/2001 | Teruyasu Watabe | R2184.0079/P079-A | 2774 |
| 24998 | 7590 | 02/14/2006 | EXAMINER | |
| DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP 2101 L Street, NW Washington, DC 20037 | | | PSITOS, ARISTOTELIS M | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2656 | |

DATE MAILED: 02/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 09/851,082 | Applicant(s) WATABE, TERUYASU | |
| | Examiner Aristotelis M. Psitos | Art Unit 2656 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 23 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-15 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2656

DETAILED ACTION

Applicant's response of 12/23/05 has been considered with the following results.

Information Disclosure Statement

The IDS of 12/23/05 has been reviewed and made of record.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
1. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over the acknowledged prior art to JP 09-171631 further considered with Noda et al and all further considered with JP 11-096576.

The following analysis is made.

With respect to claim 1, as acknowledged by applicant's description of the prior art JP -9-171631, such a system provides for the a laser power control system in this environment with respect to the bottom-level drive as it relates to both the peak power and the erase power.

The examiner interprets this as the apc mode (automatic power control loop), sometimes referred to as the automatic laser power control. Further as noted in the accompanying MAT (machine assisted translation) of the document – starting at paragraph 8, the laser drive signal is appropriately “incremented”.

Art Unit: 2656

There is no clear identification that there is another or as claimed "special" power setting process".

Noda et al teaches in this environment a different operational consideration for lasers, see his discussion as recited in the abstract.

It would have been obvious to modify the acknowledged prior art with the above teaching from Noda et al; motivation is to include an additional laser power control loop/process to ensure proper laser power.

Furthermore, the newly cited JP 11-096576 document further teaches in this environment the ability of establishing/calculating differential efficiency (η), which the examiner interprets as meeting the claimed "derivative efficiency".

It would have been obvious to modify the above acknowledged prior art system and Noda et al with this additional teaching, motivation is as acknowledged by the JP 11-096576 (see attached MAT).

Response to Arguments

Applicant's arguments filed 12/23/05 have been fully considered but they are not persuasive.

I Applicant argues that the JP '631 reference does not

- a) disclose/teach a "plurality of increment currents" as recited,
- b) disclose/teach "detection unit" and its function,

In response thereto, the examiner again refers to the MAT (machine assisted translation) of the JP document, and starting at paragraph 8 thereof, the designated various plural currents are "superimposed" and hence the examiner interprets such as the claimed "increment currents", since as discussed therein, these currents are superimposed accordingly hence they are increment currents.

With respect to the detection unit, again, referring to the MAT of the JP document, detection of the power signal is found – see the description of the operation of figure 1 for instance, wherein the examiner interprets elements 2, 3, and the sampling elements 7/11/14 as such.

Art Unit: 2656

II Applicant then argues that he has not acknowledged this JP document as teaching or suggesting “ ‘such a system provides for a laser power control system in this environment with respect to the bottom-level drive as it relates to both the peak power and the erase power.’ ”.

The examiner regrets any miscommunication to applicant, this is the examiner's characterization of the above acknowledged prior art JP '631. The examiner maintains such characterization since such follows from the descriptive nature as found in paragraphs 26 & 27 in the PGPub 2002/0018419A1 (the PGPub equivalent of the present application) and from the examiner's interpretation of the above JP document from the MAT (machine assisted translation) thereof. The examiner regrets that no MAT was provided to applicants in the previous OA. Attached hereto is one.

III Applicant argues that the Noda et al reference fails to cure the above noted deficiencies (arguments I a,b), and that it fails to teach/suggest recited features missing from the JP '631 system, such as the current driver and function thereof.

Noda was not so relied upon. The examiner maintains the reliance on Noda et al for the reasons stated above.

IV Applicant argues that the JP '576 fails to remedy the above noted documents. Also, the JP '576 fails to teach/suggest the current driver and function thereof.

Again, the examiner did not/does not rely upon the JP '576 document for such, but rather for the position stated above in the rejection. Such a position is maintained.

Claim Rejections - 35 USC § 103

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Shigemori considered with Miyagawa et al and all further considered with JP 11-096576, or alternatively Miyagawa et al considered with JP 11-096576.

The following analysis is made:

| | | |
|--|------------|------------------|
| Claim 1 | Shigemori | Miyagawa et al |
| An optical recording/reproducing apparatus for | abst & | abst & |
| recording a sequence of data blocks onto an | col 3 line | col 3 line 52 to |

Art Unit: 2656

| | | |
|--|--------------|----------------|
| optical recording medium by using a laser | 41 to col. 6 | col. 9 line 16 |
| driving current waveform to control emission | line 30 | |

of a laser beam by a semiconductor laser
and for reproducing the data blocks from
the medium, the waveform including a
sequence of mark and space data portions
each having a data length that corresponds
to a multiple of a period of a channel clock
based on a recording data modulation
method, the optical recording/reproducing
apparatus comprising:

| | | |
|---|----------|-------------|
| a semiconductor laser driver supplying a selected | inherent | element 600 |
| one of a plurality of drive currents, | | |
| including at least a first-level drive current | | |
| and a second-level drive current, | | |
| to the semiconductor laser to control | | |
| the emission of a laser beam by the laser; | | |

| | | |
|--|-----------|----------------|
| a current driver selectively outputting | elements | elements |
| one of a plurality of increment currents to | 4,5,6,7,8 | 7,8,9,11,12,13 |
| the laser driver in response to control signals, | | |
| the plurality of increment currents | see below | |
| including a first increment current supplied | | |
| to the laser driver during an automatic | | |
| power control process and a second increment | | |

Art Unit: 2656

current supplied to the laser driver
during a special power setting process;

| | | |
|--|-----------------------|----------|
| a detection unit detecting a first power | elements | elements |
| sample signal, at a first sampling point of | 2,3,17,18,24,25 | 1,2,4 |
| the waveform, from the laser beam emitted | and operation thereof | |
| when the first increment current is supplied | | |
| to the laser driver, and the detection unit detecting | | |
| a second power sample signal, at a | | |
| second sampling point of the waveform, | | |
| from the laser beam emitted when the second | | |
| increment current is supplied to the laser driver; and | | |

| | | |
|--|---------------------|-----------|
| a calculation unit calculating a derivative efficiency | element 12 | element 3 |
| of the laser based on the first | and secondary refs. | |
| and second power sample signals detected | see below | |
| by the detection unit, so that the drive | | |
| currents of the laser driver, supplied to the laser, | | |
| are controlled based on the calculated | | |
| derivative efficiency. | | |

In the above analysis:

Shigemori teaches in an optical disc drive environment the ability of variable controlling the current supplied to a laser/diode by appropriate/selectively switching currents as desired. The examiner interprets these currents as increment currents since they are all superimposed accordingly.

Although no clear depiction of an apc capability is present, such abilities are taught by the Miyagawa et al reference, see the discussion starting at 4, line 62.

Art Unit: 2656

It would have been obvious to modify the base system of Shigemori with the above additional apc capability, motivation is to ensure stabilized laser drive currents for proper recording.

The JP 11-096576 system teaches in this environment the ability of having appropriately controlled diode drive current by calculating differential efficiencies. See the abstract as well as the entire MAT (machine assisted translation).

It would have been obvious to modify the combined teachings of Shigemori and Miyagawa et al with the additional teaching from JP 11-096576, motivation is as discussed in the JP document so as to properly drive the laser currents.

Alternatively, Miyagawa et al is relied upon for disclosing in this environment a laser control device having the elements as analyzed above. Miyagawa et al also discloses the apc capability. There is no clear depiction of calculating a derivative efficiency as recited in the claim.

The JP 11-096576 system teaches in this environment the ability of having appropriately controlled diode drive current by calculating differential efficiencies. See the abstract as well as the entire MAT (machine assisted translation).

It would have been obvious to modify the system of Miyagawa et al with the additional teaching from JP 11-096576, motivation is as discussed in the JP document so as to properly drive the laser currents.

3. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 1 above as stated in paragraphs 1 and 2, and further in view of Yokoi et al.

As noted by applicant, the base system supplies the appropriate signals for subsequent use in his laser power mode. The ability of providing a variable increment of the erase signal is considered to be present. Nevertheless, the ability of switching between various erase current sources is not clearly depicted, i.e., providing for a sample of the current signals.

Yokoi et al teaches in this environment the ability of switching between a plurality of signal sources to drive a laser accordingly –see figures 6-8, 10-17, wherein the examiner interprets the various

Art Unit: 2656

erase signal(s) from the appropriate current source and hence shortening the tail edge – as further noted in figure 2 of Yokoi et al

It would have been obvious to modify the base system as relied upon above in paragraph 1 with the above noted switching/plural current sources taught by the Yokoi et al system so as to provide for the appropriate signal to drive the laser so as to shorten the tail edge.

With respect to the limitations of claims 3-6, such are considered met by the above combination of references, i.e., the switch – see Yokoi et al as he “switches” between his current sources.

The first and second states of claim 3 are considered to be those states requiring the increment of the amplitude, and as further recited/required for various data lengths in claims 4 and 24.

With respect to claims 5 and 6, the values of the signal level for the erase signal will alter, change – either be an increase or decrease – predicated upon the data signal length. Obviously these values must be included in a proper erase-level ----- range ---- (not rage).

4. Claims 8, 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 1 as stated in paragraphs 1 and 2 above, and further in view of Yokoi et al.

With respect to these claims, the space-level limitations are interpreted as the data lengths described in Yokoi et al.

It would have been obvious to modify the references as relied upon above in paragraph 1 with the additional space-level and increment such accordingly so as to properly compensate the efficiency of the laser.

The similar interpretation of the limitations of claims 10 and 11 as stated above in paragraph two are made here as well.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 8 above, and further in view of Gyo.

There is no clear depiction of “bias” currents in the above noted systems. Nevertheless, the ability of providing appropriate “bias” current sources in this environment is taught by the Gyo reference.

It would have been obvious to modify the references as stated above in paragraph 3 with the additional “bias” current sources, motivation is to use existing laser driving circuitry already established in

Art Unit: 2656

this environment and hence save valuable resources such as design time required to re-design current driving circuits from scratch.

6. Claims 12,14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 1 above, and further in view of Yokoi et al.

These claims are drawn to the bottom-level currents. Although the acknowledged prior art describes such –as indicated in paragraph 115 of the present application, the Yokoi et al reference describes such as “cooling pulses” (c), where the incrementing of such is depict for Cf, C or Cr in figure 11 for instance.

With respect to claims 14 and 15, the documents are relied upon and interpreted as indicated above in paragraph 3.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 12 above, and further in view of Gyo.

Gyo is relied upon for the reasons stated above in paragraph 4.

Allowable Subject Matter

7. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yoshikawa which discloses the ability of having a apc ability for the bias current of the laser so as to stabilize such JP 08-190725, laser monitoring for proper signal levels (bottom level) and proper compensation thereof. Note the appropriate switching of the various “increment” currents.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristotelis M. Psitos whose telephone number is (571) 272-7594. The examiner can normally be reached on M-Thursday 8 - 3.

Art Unit: 2656

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Senior Aristotelis M Psitos
Primary Examiner
Art Unit 2656



AMP